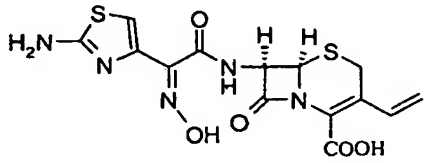
Claims :

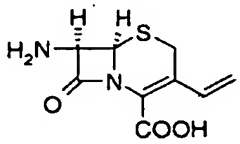
1. A process for the preparation of cefdinir of the formula (I)



(I)

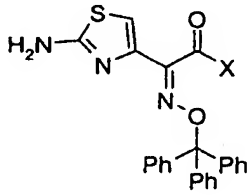
the said process comprising the steps of :

i) condensing 7-amino-3-cephem-4-carboxylic acid of the formula (XII)



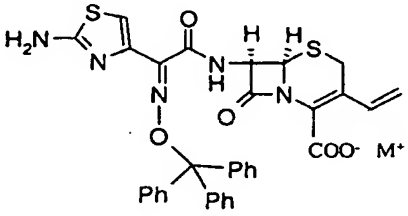
(XII)

wherein R_1 is as defined above with compound of the formula (XIII)



(XIII)

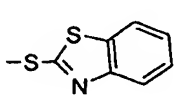
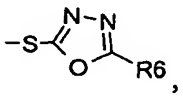
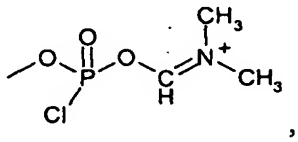
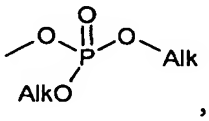
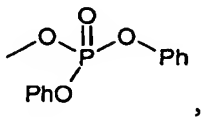
in the presence of a tertiary amine and an organic solvent, followed by treatment with a base to produce a salt of compound formula (XIV),



(XIV)

wherein M^+ is a counter ion and

ii) hydrolyzing the compound of the formula (XIV) using an acid in the presence of a solvent to produce cefdinir of formula (I).

2. The process as claimed in claim 1, wherein activation group represented by X is selected from ester, thioester, halogen atom such as chlorine, bromine, iodine,  ,  ,  ,  ,  , where R_6 represents (C_1-C_4)alkyl group or phenyl group; Alk group represents (C_1-C_4)alkyl.

3. The process as claimed in claim 1, wherein the counter ion represented by M is selected from sodium, potassium, lithium, magnesium, ammonium, dicyclohexylamine, N,N'-dibenzylethylenediamine, 1,8-diazabicyclo(5.4.0)undec-7-ene (DBU), 1,5-diazabicyclo(4.3.0)non-5-ene, N,N'-diphenylethylenediamine, 1,4-dizabicyclo(2.2.2)octane, N,N-diisopropylethylamine or N,N-diisopropylamine.

4. The process as claimed in claim 1, wherein the tertiary amine is selected from triethylamine, N-methylpiperidine, N,N-diisopropylethylamine, trimethylamine and the like.

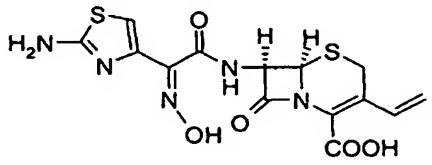
5. The process as claimed in claim 1, wherein the organic solvent used in step (i) is selected from ethanol, methanol, isopropanol, THF, cyclohexanol, acetone, butan-2-one, acetonitrile, DMAc, water or a mixture thereof.

6. The process as claimed in claim 1, wherein the organic solvent used in step (ii) is selected from acetone, 2-butanone, methanol, isopropanol, ethanol, THF, acetonitrile, DMAc, water and the like or mixtures thereof.

7. The process as claimed in claim 1, wherein the acid is selected from HCl, sulfuric acid, formic acid, acetic acid or aromatic/aliphatic sulfonic acids.

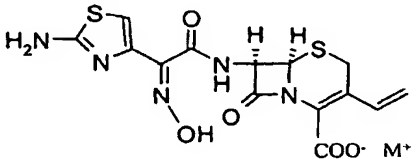
8. The process as claimed in claim 1, wherein the compound of formula (I) obtained is a syn isomer.

9. A novel amorphous monohydrate of cefdinir of the formula (I)



(I)

10. The process for the preparation of novel amorphous monohydrate of cefdinir of the formula (I) as claimed in claim 9, comprising hydrolyzing the compound of the formula (XV)



(XV)

comprising the steps of :

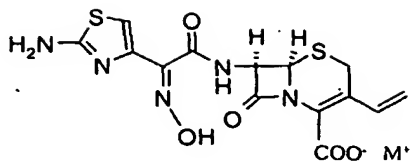
i) adding an organic solvent to compound of formula (XV),

ii) adjusting the pH of the resulting solution using an acid at a temperature in the range of 10 to 40 °C,

iii) cooing the resulting solution rapidly to –40 to 0 °and

iv) isolating the novel amorphous monohydrate of cefdinir of the formula (I).

11. The process for the preparation of novel amorphous monohydrate of cefdinir of the formula (I) as claimed in claim 9, comprising hydrolyzing the compound of the formula (XV)



(XV)

comprising the steps of :

i) adding an organic solvent to compound of formula (XV),

ii) cooing the resulting solution to –40 to 0 °and

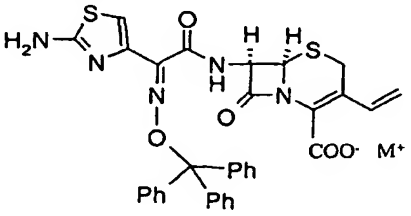
iii) adjusting the pH of the resulting solution by rapid addition of an acid at a temperature in the range of 10 to 40 °C,

iv) isolating the novel amorphous monohydrate of cefdinir of the formula (I).

12. The process as claimed in claims 10 and 11, wherein the organic solvent is selected from acetone, 2-butanone, methanol, isopropanol, ethanol, THF, acetonitrile, DMAc, water and the like or mixtures thereof.

13. The process as claimed in claims 10 and 11, wherein the acid is selected from HCl, sulfuric acid, formic acid, acetic acid or aromatic/aliphatic sulfonic acids.

14. A compound of compound formula (XIV),



(XIV)

wherein M^+ represents a counter ion.